Reid Wagner

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Experience

Elementary Robotics – Los Angeles, CA
Embedded Engineer *January 2020 – June 2020 (6mo)*

- Achieved order-of-magnitude improvement in synchronization over multiple ECUs by utilizing the DTR signal as a trigger.
- Contributed to a highly automated Docker environment that allowed for parity across developer machines.
- Utilized Linux shared memory to add simulations for GPIO and other interfaces to an in-house embedded device simulator.
- Completed initial firmware bring-up of CAN FD for higher data transmission speeds and easier synchronization.

Bird – Los Angeles, CA
Sr. Firmware Engineer *May 2019 – December 2019 (8mo)*
Firmware Engineer *April 2018 – April 2019 (1yr)*

- As initial and primary bootloader author, maintained LTE OTA update process and codebase, which delivered cryptographically secure firmware upgrades to multiple components across tens of thousands of devices.
- Contributed Go code for web services that communicated with in-field devices.
- Built UDS firmware stack that drives firmware updates over CANBus, as well as Python client tooling.

Thomson Reuters – Ann Arbor, MI
Software Engineer (DevOps) *January 2016 – March 2018 (2yr 3mo)*

- Authored custom Python HTTP request log analyzer and plotter for pinpointing problematic services or request origins.
- Resolve highly technical issues that arise in administration of RHEL servers by researching kernel internals.

Congress Info – Ann Arbor, MI
Founder and Engineer *August 2015 – March 2016 (8 mo)*

- Researched and implemented tech stack using Laravel PHP framework and PostgreSQL.
- With team of five, successfully completed University of Michigan Tech Arb Accelerator program.

University of Minnesota Physics and Astronomy – Minneapolis, MN
Junior Scientist *September 2014 - September 2015 (1 yr)*

- Designed and built 12-foot conservation-of-momentum demonstration for use in educational shows.
- Optimized physical design considerations for cosmological microwave telescope.
- Utilized Visual Basic to operate on large SolidWorks CAD assemblies.

Open Source Contributions:

Micropython: Python implementation targeting uCs
- Implemented recalculation of select.poll timeout.
- Fixed bug where small timeouts rounded to zero.

Bat: cat(1) clone in Rust
- Fixed incorrect EOF handling.
- Contributed integration tests

Other: Build fixes and code clean up in projects including sshfs, prost, and Spaghetti.

Technical Knowledge

Proficient in: C, Python, Bash
Have experience in: C++, Go, Rust, SQL, Lisp, JavaScript, HTML, CSS, Java, ARM/x86 asm

Other technologies: Linux, Docker, Ansible, AWS, Docker, Git, Vim, Jenkins, OOP, HTTP, TCP/IP, SSL/TLS, DNS, asymmetric encryption, FreeRTOS, ARM, STM32, nRF, BLE, LTE, Hayes (AT) command set, UART, I2C, CANBus, ISO-TP, UDS, logic analyzers, Makefile, GDB, OpenOCD, Git, Cygwin, Vim, Wireshark, Solidworks (CAD), TeX, 3D Printing, AWS

Education

Kalamazoo College 2010 – 2014
Bachelors in Physics and Mathematics, with honors in Physics

International Sustainable Development Studies Institute 2012 – 2013
Study abroad program in Chiang Mai, Thailand

Awards

1st Place Company Hackathon Project - First implementation of Rust firmware running on a Bird scooter.
John Wesley Hornbeck Prize - Awarded to senior with highest achievement for the year's work in advanced physics major.
Beeler Fellowship - Awarded to fund senior thesis abroad.
Honors in Physics Degree